

PAPERS  
ON  
EPIDEMIC HOSPITALS,  
AND OTHER SUBJECTS,

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BY  
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LONDON.

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ABERDEEN: D. WYLLIE & SON,  
UNION STREET.  
1873.

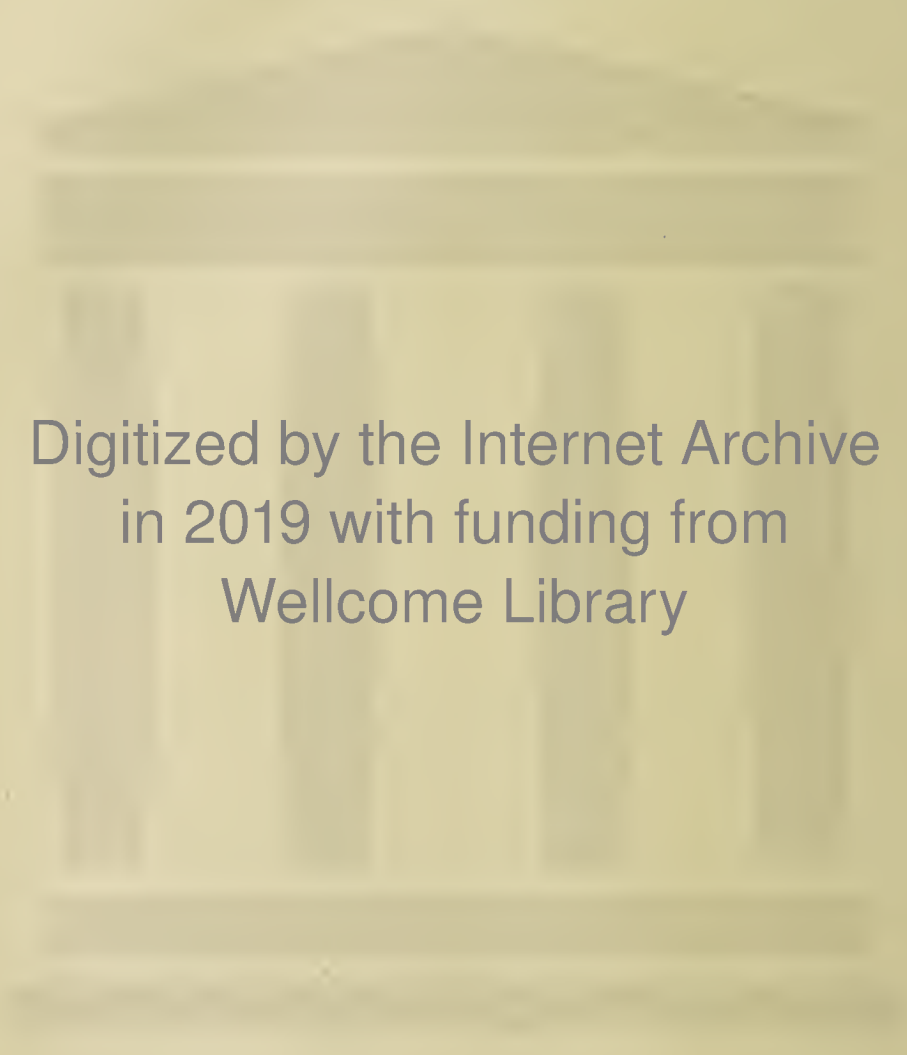


THE Letter which I addressed to the Lord Provost of Aberdeen regarding EPIDEMIC HOSPITALS having attracted some attention in England, and application having been made for copies of it, which I am unable to furnish, I am induced to republish, in a pamphlet form, the observations I made in that communication.

My letter was written in the beginning of June, 1872, when small-pox was prevalent, and some hope appeared that arrangements were likely to be made, at the demand of the PUBLIC, even when the repeated representations of skilled medical men had failed, to urge the Local Authority to separate contagious from non-contagious, and infectious from non-infectious, diseases.

At present the Royal Infirmary Physicians have no power effectually to prevent a typhus fever patient receiving typhoid fever, scarlet fever, or small-pox.

If the suggestions I offer are carried out, all danger (and a great one it is) of a patient succumbing to a second disease will be removed. The amount of money expended on the temporary small-pox hospital at Mounthooly, with its miserable accommodation and *inconveniences*, would have been quite sufficient to erect permanent and contingent temporary Hospitals according to the plan I suggest.



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## EPIDEMIC HOSPITALS.

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FREE PRESS, *June 11th*, 1872.

MY LORD PROVOST,—I beg to point out to the Local Authority how desirable it is to lose no time, while the epidemic of small-pox is still keeping the public in a state of anxiety, in securing a properly situated and designed Hospital for the treatment of epidemic disease.

I am aware that the subject is at present under consideration, and therefore I now beg to offer some remarks as to what I consider the necessary preparation to be made in anticipation of future epidemics.

I. *Site*.—There is no doubt that the Site chosen must be near town, and must be 250 or 300 yards away from inhabited buildings. It must be in a high, dry, and exposed locality, and two or three acres of ground would be necessary for the buildings and waste ground around.

The reasons that make these points essential are :—

(a) That small-pox and scarlet fever—the two most infectious and contagious diseases—require (to dilute that infection), the fullest admission of air during the disease, as well as seclusion.

(b) Cholera being propagated solely (when occurring away from its endemic seat in Bengal) by excreta, and soiled clothes tainting water with such, requires these excreta to be prevented reaching any water drainage or water supply.

(c) Typhus and typhoid fever (the poison of both of which has not yet been definitely decided) both require seclusion—typhoid certainly being due to poisonous gases from drains, &c., but infectious and contagious as well.

II. *Buildings*.—The great object demanded in such an hospital is, in the first place, the most thorough ventilation ; and, secondly, the facility with which the wards can be disinfected ; with, thirdly, the separation of one class of epidemic disease from another.

Now, with regard to the first point, Paget recommends that pyæmia (blood-poisoning) should be treated in the open air ; Pringle and Sir James M'Grigor advised that typhus should be treated in the same manner. It has also been my practice to treat small-pox in tents (even in cold weather) and hospital gangrene in an exposed verandah, with benefit to the patient, and little risk to his neighbours.

SECONDLY.—With regard to disinfection this is the objection (and, in my opinion, an insuperable one) to a *large permanent hospital*.

The virus, especially of scarlet fever and erysipelas, will stick to a room, after all the ordinary precautions have been observed, and I have seen erysipelas break out again in an hospital ward after the walls and floor have been scraped, disinfected, and the room left vacant and open for two months : so difficult is it sometimes to secure safety.

The great success of the treatment of all diseases in cottage hospitals simply depends upon the large amount of untainted air which surrounds the patients. In any two-storeyed building the respired warm air *must* rise from the patients in the lower part of the house, and taint the atmosphere for those above. Therefore, I disapprove of a double-storeyed building being occupied (on both flats) by patients suffering from infectious disease.

THIRDLY.—During the present epidemic in Aberdeen, patients, I know, have been admitted with fever and died of small-pox, which shows the necessity for the separation of these forms of disease.\*

There is no doubt now, both from statistics of to-day and from former experience (some examples of which I will quote

\* Yesterday, March 11, 1873, a patient was discharged barely convalescent from severe typhus fever, the doctors fearing she might catch scarlet fever.



shortly from Parkes on Hygiene), that the simpler the building is the better.

During the Austrian campaign in 1854 the sick and wounded, treated in tents, with many fewer comforts than those in the regular hospitals, recovered much sooner. Miss Nightingale's experience also is similar, and so is that of all practical surgeons in the field. To cite one instance more. In October, 1778, an epidemic of fever broke out at the Isle of Wight, and was so severe that a thatched building of wood was run up for the accommodation of 120 sick, and notwithstanding sea fog and cold, the recoveries were far in favour of the temporary erection. That building cost in those days £40. So much for the three great necessities—ventilation, disinfection, segregation.

It appears to me that the proper form of Epidemic Hospital for Aberdeen should consist of one brick or concrete building, of two storeys, with silicated or glazed tile floors, the walls coated with cement, ventilation in the walls and floor, near the beds, and also in the roof, capable of being regulated at will, and other arrangements in detail.

This permanent building should not accommodate less than twelve patients in the upper storey. The lower floor should have rooms for the house-surgeon, nurse, store-room, kitchen, &c. ; and attached to the same building should be a large disinfecting oven, and a shed for carriages for conveying the sick to Hospital.

I would further recommend that foundations should be laid for temporary iron hospitals for forty or sixty patients, allowing 120 superficial feet, at least, for each patient, and asphalte flooring, filled within the low boundary wall of the foundation. On one side of the building there should be foundation for a ten-foot verandah, to be covered with a corrugated zinc roof, when the hospital is in use, as a lounge for convalescent patients. If these foundations existed, iron hospitals to any extent could be run up with angular iron stanchions and girders ; and when the epidemic abated these could be removed, re-painted, and stored with the greatest ease.

The great advantage of iron hospitals is that they can be erected so quickly, after having been once fitted, and reversed at each move, which ensures their thorough purification.

III. *Sanitary Arrangements*.—For the destruction of the poison existing in cholera and typhoid fever (as also probably in dysenteric dejecta), the only efficient way of removing danger of spreading the disease, is by the dry earth system, the product to be buried in trenches at once; all chance of water contamination is hereby removed, and not the slightest foetor exists. The dry earth system we used invariably in the General Hospital in Calcutta, and in two jails (where 1200 convicts were respectively confined), with perfect success. The earth used must be dry, and would require a shed for storing it.

IV. *Disinfection*.—This at present in Aberdeen is a most difficult matter to carry out, especially with regard to clothes and bedding. A small oven, of about a yard cube, at the Poor's-house, in Nelson Street, and only sufficient for purifying the clothes of the inmates, is, as far as I am aware, the only satisfactory disinfectant in Aberdeen. It is certain that *moist* heat is inefficient, and very doubtful if carbolic acid, or nitrous acid fumes, thoroughly disinfect clothes or bedding. *Dry* heat is the *only* reliable means, and the absence of any way of readily obtaining this, has led many of the poor (loth to destroy good things, though soiled), to put them away for the present, with the chance, almost certainty, of resuscitating an epidemic at some future period.

Dr. Henry, of Manchester, found that three hours' exposure to dry heat at 140 deg. F. rendered vaccine lymph quite useless. The same heat would, almost certainly, destroy small-pox virus. Scarlet fever poison is destroyed by an exposure for one hour to 212 deg. F. *dry*. Even plague clothes exposed for 24 hours at a heat from 144 deg. to 167 deg. F. were safely worn by 56 prisoners. These instances, and many others, show the efficacy of dry baking.

With regard to cholera and typhoid excreta-stained clothes, they had certainly better be burned, but not so the other clothes of the cholera patients.



The oven I would strongly recommend to the consideration of the Local Authority for disinfecting purposes can be obtained from Messrs. Sidney & Aiming, hot-water engineers, 5, Swinton Street, Gray's Inn Road, London.\*

It is a patent multitubular superheated steam oven. The chamber is surrounded by a large number of hermetically-sealed iron tubes, of the length—say of fourteen feet—having five inches of water confined. These are secured in a slanting position, so that the water may lie in a small furnace, and the superheated steam will speedily raise the temperature in the chamber without tearing the tubes, and at a minimum expense of fuel. A small charge for disinfecting clothes for private families would soon cover the cost of this oven, and relieve the doctor of the embarrassing question, “What am I to do with these things?” The soiled clothes from the upper part of the permanent hospital could be sent at once by a shoot to the oven, and its heat might be used for many other purposes.

These remarks are made simply as suggestions, as I should be sorry to see Aberdeen again so ill-prepared to combat an epidemic as it was, and is, during the present one. I also know that the Royal Infirmary in Aberdeen has been shunned by patients, both from the town and the country, from the dread of infection—certainly, a short time ago, quite justifiable.

I am aware that the branch of the British Medical Association in Aberdeen has expressed its willingness to give an opinion regarding the question of site; and I hope the remarks I have made may help in securing a speedy decision on a suitable site and building, and on supplying a means of disinfecting available to the public, either free, or at a small charge. I have the honour to be, my Lord Provost, your very obedient servant.

\* I think this firm has removed, but their address can be obtained.

## LIGATURE OR ACUPRESSURE.

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### SOME PRACTICAL REMARKS ON SECURING VESSELS BY THE TWO METHODS AT PRESENT UNDER DISCUSSION.

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ABERDEEN MEDICAL STUDENT, *February 28th, 1873.*

I. It is certainly true that no formation of pus *may* sometimes occur when superficial, or even deep-seated vessels, are compressed by the needle, if the patient is in such a state of health as to allow the speedy coagulation of blood, and of its deposit of fibrine.

II. It is certainly true that if the blood is not in the condition to produce a firm coagulum, or the arterial coats brittle, that both Ligature and Acupressure may fail—secondary hæmorrhage being the result. No one can decide in this case, but I should feel inclined to acupress, instead of ligaturing, the vessel.

III. I regret that the dispute has been so keen between the advocates of either system. The truth lies in the medium, and both in teaching and practice it is right for the Professor to inculcate, and the surgeon to carry out, what is the proper treatment under different conditions, without any bias, except what his own practical skill or information afford.

IV. Acupressure in a healthy vessel in a primary amputation is *proved* to be the most desirable, provided the removal of the needles is delayed till a reasonable time elapses—this to be judged, *not by the wishes of the Surgeon*, but by the condition of

the patient,—the surgeon especially having regard to the likelihood of a satisfactory clot forming at the point of Acupressure.

V. The extra time that a ligature takes to cause absorption of the arterial coats is in many cases the safety of the patient, *especially* if he is in a cachetic condition.

VI. In practical Surgery, whether we recognize three or five coats in artery, whether we stop the circulation by a ligature, or a hitch of the needle, we have the same end in view, inflammation of the interior of the vessel, and a plugging, both by inflammatory exudation, and the capture of the fibrine of the blood at the spot.

VII. I hold that no law can be laid down as to the proper treatment in all cases, and that it is bad surgery to say, that “I always acupress,” or, “I always tie.” The important thing to a surgeon’s patients is, that by experience he should know, and use, what is best for his patient, weighing, without prejudice, the suitability of the various operations.

In reading over the literature on the suppression of hæmorrhage, I feel convinced that the best thing for the patients of the readers of the *Medical Student* is, that the latter should observe for themselves, and not be led by either champion to neglect one form of blood-stopping in favour of the other. Each is useful in its own place.

Torsion also deserves remark ; even in large vessels it has frequently proved perfectly effective.

I have seen the brachial artery two and a half inches long hanging (along with the median and ulnar nerves) pulsating to the point, after the arm was wrenched off in a railway accident, without hæmorrhage. I removed the remains of the arm, only tying the axillary. I may also note that I have amputated immediately below the knee, in a case of crushed leg, and not tied or acupressed a single vessel. No hæmorrhage took place, and the patient recovered.

In cases of smaller vessels we all use Torsion ; and, with perfect rest, I believe it would be sufficient in a healthy primary amputation, if much collapse did not exist ; and that the

*primary* risk of hæmorrhage over, the *secondary* would be less than that of *ligature*.

In all deep seated wounds, inaccessible to ligature, torsion (or in the event of bleeding from bone not checked by boxwood plugs) the actual cautery is the only satisfactory proceeding.

With regard to the absorption of cat—or salmon—gut ligatures, it has never been *proved* that they have been absorbed, and removed by the lymphatics ; they are either encysted, or ejected, and the idea that a foreign body can be digested and absorbed by the ultimate radicals of the lymphatics, must be ranked in the same class of fictions as that defunct epidemic scales will produce dermis and epidermis, or that the paring of ones nails would, if transplanted, grow into a horn. The transportation of a tooth, or a cock's spur, is a different operation, but the epidermis and the extremity of the nail are in the same position as the ragged portion of a horse's frog, dead and useless.



## ON THE RADICAL CURE OF HERNIA.

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LANCET, 4th March, 1871.

Up to the present time, so far as I am aware, seven operations have been suggested for the radical cure of reducible inguinal hernia, all having the same object—the obliteration by plastic material of the aperture of exit.

The very simple operation (even more simple than that of Mr. Redfern Davies) I now recommend requires neither the invagination of the parts nor the use of plugs or buttons, whether of india-rubber or split shot. The steps of the operation are these :—

I use a rather long-handled flat nævus or hæmorrhoid needle, well bent (quite a semicircle from shoulder to tip of  $1\frac{1}{2}$  in. diameter), not too wide, and sharpened on both sides from one-third of an inch from the point. A fine hole is drilled for the passage of the ligature, a quarter of an inch from the point. This needle, with a plain dissecting forceps and strong salmon-gut, is all that is required for the operation.

In the first place, chloroform must be fully administered, the hernia reduced, and the thigh adducted and flexed. The finger, as usual, is introduced *quite within the internal ring*, carrying the integument in front of it up the canal, while the assistant draws the skin of the abdomen firmly over towards the opposite groin. The threaded needle is then passed close to the finger, a small piece of wax having been moulded on its point (instead of a canula) ; the handle of the needle is raised, and the point pushed through the internal pillar and the abdominal parietes close within the internal ring. The portion of gut on the convex side of the needle is seized by the forceps of the assistant, and the needle, still threaded, withdrawn through all



the structures except the temporarily invaginated skin. The finger being carefully maintained *in situ*, the gut on the concave surface of the needle is slightly pulled by the assistant, while that already seized is firmly held ; this facilitates the turning of the needle and transfixion of the outer pillar (Poupart's ligament). This being accomplished, the skin of the abdomen is drawn towards the crest of the ilium, and the needle passed through the original aperture, unthreaded, and the finger and it withdrawn. We have, therefore, one scrotal and one abdominal aperture—the latter directly above the aperture of exit of the hernia. Nothing now remains but to tie firmly home the two ends of the salmon-gut, cut it short, and let it drop into the wound. A pad and spica bandage are applied, a dose of opium is given, and the patient kept in bed until the parts are well matted together. The knot of salmon-gut will either become encysted or come away, it matters little which ; in either case the approximation of the pillars is certain. It is satisfactory to the operator, that the assistant should pass his finger up to the internal ring, when he can distinctly feel it grasped as the ligature is tightened. It is absolutely necessary that the salmon-gut should be soaked in warm water for five minutes before being used, and that long round threads should be selected. The needle should be threaded from the concave side.

I have at present performed this operation only three times—twice with complete success. The unsuccessful case occurred in the European General Hospital in Calcutta, where the patient, a sailor, leaped over several beds within a week after the operation, and reproduced the hernia.

I would suggest that this operation should be employed when a very large ring exists, so that its space might be diminished, and that the protrusion might thus be brought under command of an ordinary truss.

In the three cases on which I have operated I have had no hæmorrhage. One was to all appearance a direct, the others examples of external, inguinal hernia. I give a short summary of my last case.

In consultation with Dr. Pirrie, we agreed that the following was a suitable case for the operation.

R. M——, aged twenty-three, of a nervous and restless temperament, had suffered from reducible right oblique inguinal hernia, of the size of a hen's egg, for three years, accompanied by a small hydrocele. He was exceedingly anxious to have the hernia permanently cured. As he did not pay much attention to the adaptation of his truss, the hernia was gradually increasing in size. At his request I operated (and chose the manner described above) on the 3d of November, at 3 P.M. He had a grain of opium at once, which was repeated by my orders at 9 P.M., and a little cold beef-tea when desired.

Nov. 4th.—Good night; slight tenderness over the wound.  
—9 P.M.: Passed water; general uneasiness, and some slight tenderness in right iliac region.

5th.—Took half an ounce of castor oil; pain towards right iliac region; testicle retracted. Oil operated slightly.

6th.—Wound dressed; purulent discharge, redness, and tenderness entirely local.—7 P.M.: Had an attack of colic, which was relieved by camphor and assafoetida pill.

Dec. 17th.—Not the least impulse on coughing; part solid. Cured.

ABERDEEN, February 17th, 1871.

## ON THE DISEASES OF THE ANTRUM.

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LANCET, 4th January, 1873.

The diseases of the cavity of the antrum proper must be kept, in their surgical description and treatment, separate from those which have their rise in the alveolar process—such as epulis or otitis terminating in necrosis, &c. The diagnosis of disease in the interior of the antrum is, at first, very difficult, and the symptoms about to be described fail to point out, with certainty, with what disease the surgeon has to contend.

In the first place, pain, a feeling of weight, and “neuralgia” are complained of, and a slight puffiness of the cheek is observed. The nostril on the side affected is generally dry, and on examining the mouth there will usually be found disease of the bicuspid teeth, with, probably, necrosis of the root of one of them, which may or may not have found its way into the antrum. Under these circumstances I have never seen any enlargement of the antrum, although the cheek is usually puffed. The proper treatment, of course, is to extract the dead portion of the tooth, make a free opening with the trocar, and wash out the cavity with some weak disinfecting solution. Should it be impossible to ascertain, in a mouth filled with stumps, which is most to blame, I prefer passing a full-sized flat trocar above the root of the second bicuspid.

A second class of cases occurs in which we have dropsy, or pseudo-dropsy, of the antrum—in my experience always associated with non-malignant polypus, exactly similar to the fibroid polypus of the nose. In these cases little pain is felt, and the only uneasiness complained of is a feeling of stuffiness in the head, weight in the affected part, and lachrymation from the eye of the side affected. Should the opening from the antrum



into the nose be closed, the pressure from the accumulated fluid soon thins the anterior wall, and the cheek, on being pressed upon, gives a most characteristic crackling sensation. The face being swollen, it is generally then that people of the middle and lower classes first apply for advice. In cases such as these there is no necessity for the removal of the antrum ; the proper treatment I consider to be to divide, if necessary, the upper lip, tying the coronary arteries, pulling up the flap, and, with a strong scalpel, divide and remove the whole of the attenuated bone. Probably a considerable amount of serum will escape, and most likely a polypus will be found in the cavity. The only risk attending this operation is hæmorrhage from a wide-based polypus, and this is easily controlled by the actual cautery, or plugging with a strip of lint dipped in perchloride of iron with glycerine.

Osteo-sarcoma and enchondroma of the upper jaw require complete ablation. There is no difficulty in the diagnosis, as the tumour is firmer than scirrhus, rough and irregular in outline, and of slow growth. On opening the front part of the antrum, should the tumour be found to present the character of encephaloma, it would be worse than useless to attempt to extract it, as it would certainly recur from the numerous processes extending towards the back of the orbit and base of the skull.

In scirrhus, however, it appears to be different. The diagnostic points of scirrhus of the antrum I think may be described as follows :—Hereditary predisposition ; advanced age ; constant dull pain in the part, with occasional stabbing pain ; the speedy appearance of a swelling in the cheek and palate, which may in time be also felt with the finger at the posterior nares ; and, as the disease advances, the eye may be extruded. Excessive pain generally prevents the sufferer from sleeping, and this is the principal reason that would lead the surgeon to remove the superior maxilla—not so much to cure the disease as to give comfort to the patient and to prolong a life which would certainly speedily come to a close from the wearing suffering the disease entails. The operation, however, of the removal of the

whole antrum is generally held to be unjustifiable should any enlargement of the submaxillary glands exist, still more so should any head symptoms show that processes of the tumour extend towards the base of the brain.

Cases of abscess of the antrum treated by perforation, and completed by cure, are far from uncommon. Fibrous tumour of the antrum I have twice removed by cutting through the attenuated bone with a strong scalpel, and stopping the hæmorrhage with a long strip of lint firmly plugged in the cavity; in neither of these cases did I divide the lip.

The entire removal of the right superior maxilla, together with the pterygoid process and palate bone, is a much more serious affair, both for the patient and the surgeon, and I am glad to place on record an instance of its successful performance.

Mrs. R——, aged sixty-three, sanguine and healthy-looking, had, from the month of May, 1872, pain in the right antrum, which gradually increased in severity during three months. She thought it was rheumatic. No swelling appeared till the end of June, when she became sleepless at night, and a dull aching pain lasted all day. She had lost all her teeth on that side, with one exception, and that was removed without benefit. I first saw this case about the beginning of July, when there was fulness of cheek, a lobulated expansion of the hard palate, of the right side; and a tolerably hard tumour could be felt at the back of the posterior nares; great persistent pain was complained of; there were no enlarged glands. An exploratory puncture was made by her usual medical attendant, with a negative result. I subsequently saw her, arranged matters, and, at her urgent desire, operated on Saturday, September 21st.

The patient being supported in a chair, with a sheet tied round her, chloroform was gradually administered. I divided the upper lip into the right nostril; tied the coronary arteries; entered my scalpel over the right malar bone, cutting to the bone, across to the nasal process of the superior maxilla, then down the side of the nose, round the ala, to join the first incision. I quickly reflected the whole flap, holding it firmly to



compress the vessels, and dissecting free of a nodule of tumour prominent in the anterior wall. I then tied what vessels bled; cut with a cutting pliers the malar bone above and below, completing the section, as also the external orbital angle and the nasal, and the internal angle of the orbit, with a Liston's forceps. With a pruning-claw nippers the hard palate was easily divided. After separating the eye from the orbital plate, I found the lion forceps would break up the tumour; so I used a long flat-bladed lithotomy forceps, placing one blade in the orbit, and, dividing the pterygoids and other attachments, succeeded in wrenching the whole mass away. Immediately on its removal, a very large jet of blood sprung from the deepest corner of the wound; this was immediately controlled by the finger, and arrested by two applications of the actual cautery. This probably was the internal maxillary greatly enlarged; but its situation was so deep at the tip of the petrous portion of the temporal and body of the sphenoid bone, that it is impossible to be sure of the vessel. A few parts of the soft palate and cheek required a little trimming, and several small vessels were ligatured; long strips of lint damped with tincture of muriate of iron were pressed to the very base of the skull, and the wound united with gold-wire sutures, except the free mucous membrane of the lip, which was stitched.

The patient soon rallied, and slept almost continuously for two days, being only wakened to have her mouth syringed and to get milk, beef-tea, and ice. On the third day all the strips of lint were removed, without any hæmorrhage; the greatest attention was paid to syringing the whole wound with diluted Condyl's fluid, and, at times, carbolic acid lotion. Five weeks after the operation all the external wound was healed, with the exception of two small holes in the transverse incision; and the patient returned home quite relieved of all her former suffering, and with a fair chance of life being prolonged for some years.

In doing this operation again, I would not cut quite so close to the orbit, as the tissues are not very vital there. There was

no sloughing, but, notwithstanding a free allowance of port wine, bark, and whisky these portions would not unite by the first intention.

The tumour presents the following appearance :—It is of the size, and somewhat of the shape, of a large lemon. Below, half the palate ; posteriorly, the mucous membrane of the posterior nares and pharynx ; internally, the turbinated bones ; externally and laterally, a long tongue that has extended into the sphenomaxillary fossa ; anteriorly, a rounded protrusion through the wall ; superiorly, the orbital plate. It is quite solid after immersion in spirits ; and, microscopically, is an admirable example of fibrous scirrhus.

The patient can speak wonderfully well, sleeps, eats soft food, and is in every way comfortable. She left for her home within six weeks of the operation.

I was most ably assisted by Dr. A. Forbes ; Dr. Scott, of H.M.'s Navy ; Mr. Moir, the house-surgeon of the Royal Infirmary, Aberdeen ; and Dr. Inglis, who most judiciously kept the patient sufficiently under chloroform. There was no trouble from blood getting into the larynx.